

## ABSTRACT OF THE DISCLOSURE

An information need can be modeled by a binary classifier such as support vector machine (SVM). SVMs can exhibit very conservative precision oriented behavior when modeling  
5 information needs. This conservative behavior can be overcome by adjusting the position of the hyperplane, the geometric representation of a SVM. The present invention describes a couple of automatic techniques for adjusting the position of an SVM model based upon a beta-gamma thresholding procedure, cross fold validation and retrofitting. This adjustment technique can also be applied to other types of learning strategies.

10